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ABSTRACT

The instruction of six teachers in a private school (Benchmark) for bright underachievers that is characterized by a strategic teaching initiative, strong instructional leadership, and collegiality was examined to characterize the nature of instructional dialogue. Lesson transcripts were coded for the presence and organization of eight instructional moves often found in a good strategy instruction. Results demonstrated teachers' fidelity to a particular vision of instruction. Instructional moves designed to make strategic processing specific and explicit were found in all lessons, with the majority of lessons containing at least seven of the eight strategy instruction moves. Instruction was found to be transactional and process-oriented. Interactive cycles of dialogue, during which teachers were responsive to students' strategic construction of knowledge, were prevalent. Student and teacher demographic variables were considered as they related to characteristics of instruction. The transactional strategy instruction that was found is likened to instruction described by G. Duffy and L. Roehler and is contrasted with a recitation model of instruction. Four tables and three figures representing instructional materials are included. Contains 52 references. (Author/RS)

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SIX TEACHERS' DIALOGUE DURING COGNITIVE PROCESS INSTRUCTION

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April 1994

Center for the Study of Reading

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Abstract

The instruction of six teachers in a private school for bright underachievers that is characterized by a strategic teaching initiative, strong instructional leadership, and collegiality was examined to characterize the nature of instructional dialogue. Lesson transcripts were coded for the presence and organization of eight instructional *moves* often found in good strategy instruction. Results demonstrated teachers' fidelity to a particular vision of instruction. Instructional moves designed to make strategic processing specific and explicit were found in all lessons, with the majority of the lessons containing at least seven of the eight strategy instruction moves. Instruction was found to be transactional and process-oriented. Interactive cycles of dialogue, during which teachers were responsive to students' strategic construction of knowledge, were prevalent. Student and teacher demographic variables were considered as they related to characteristics of instruction. The transactional strategy instruction found here is likened to instruction described by Duffy and Roehler (1987b) and is contrasted with a recitation model of instruction.

SIX TEACHERS' DIALOGUE DURING COGNITIVE PROCESS INSTRUCTION

The typical way to change education is to propose a new curriculum; instead, we propose looking at instruction. The instructional moves of teachers entail countless decisions about various classroom contingencies--decisions that no curriculum developer could be expected to envision. For this reason, a curriculum can only be an abstraction until it is realized in the instruction of a particular teacher in a particular classroom. Curriculum artifacts such as statements of purpose, scope and sequence charts, textbooks, teachers' manuals, and lesson guides are by themselves lifeless; they are brought to life when teachers collaborate with students.

Teachers and students must, in fact, *construct* the curriculum. The use of *construct* that we intend parallels the use among reading educators when we say that readers construct the meaning of text. It is now generally agreed that meaning is not *in* texts but arises from transactions *between* readers and texts (Rosenblatt, 1978). Similarly, instruction arises from transactions of teachers and students with curriculum materials. The relationship between the teacher, students, and materials is a reciprocal one in which each influences the other and, in turn, the context influences the transactions--transactions that provide the opportunity for instruction that is dynamic and flexible.

When implementing a curriculum, teachers must bring to bear subject-matter knowledge, pedagogical knowledge, and curricular knowledge (Shulman, 1986, p. 26). However, teachers vary not only in terms of their knowledge but also in their values, training, and personal and professional experience. If anything, students are even more variegated. Therefore, it follows that, as teachers and students collaboratively construct the curriculum, the curriculum actually realized may vary widely from classroom to classroom.

The conventional assumption is that the curriculum represents an ideal and that the ideal becomes degraded in actual use. We reject this conventional view, believing that teachers inevitably will interpret curriculum idiosyncratically to fit the needs of their students, an action that we applaud. We, like Bruce and Rubin (1992), believe that looking at a curriculum is like looking through a prism that produces a spectrum of realizations. Diversity among realizations of the curriculum is the norm. Whether the realizations will form a broad or a narrow spectrum seems to depend upon such factors as variation among teachers and students, commitment to common goals, and participants' understanding of the teaching and learning strategies entailed by the curriculum. These factors in turn probably depend upon additional factors. Two factors that are highly likely to be important are *collegiality* and *leadership*.

Collegiality proved to be the hallmark of schools that succeeded beyond expectations in Little's 1982 study involving 105 teachers and 14 administrators from six urban schools. She concluded:

> In successful schools more than unsuccessful ones, teachers valued and participated in norms of collegiality and continuous improvement (experimentation); they pursued a greater range of professional interactions with fellow teachers or administrators, including talk about instruction, structured observation, and shared planning or preparation. (p. 325)

School leadership is a second factor that undoubtedly influences whether a curriculum is well implemented and whether there is more or less variation among its realizations. In a recent series of articles, Newmann and his colleagues (McCarthy & Schrag, in press; Newmann, 1990a, 1990b; Onoski, 1990) reported an extensive study comparing 10 social studies teachers either seriously committed or less seriously committed to promoting higher order thinking. The investigators concluded that the differences among teachers could be accounted for by the presence of department-sponsored initiatives

in the area of thinking, strong leadership by the department chair and the school principal, and collegiality among department staff.

Thus, the reforms necessary to create literate, thinking young people may lie in the province of instructional reform rather than in curriculum reform. It also appears that these instructional reforms are most likely to occur in settings characterized by collegiality, strong leadership, and strategic thinking initiatives.

The latter area has been the subject of a great deal of research during the past 25 years, particularly research on instruction of cognitive strategies. (For summaries of this research see, e.g., Paris, Wasik, & Turner, 1991; Pressley, Goodchild, Fleet, Zajchowski, & Evans, 1989.) Much of the early work was basic research, either conducted with laboratory tasks or, if done with academically valid tasks and materials, then occurring in instructional situations not typical of classrooms (e.g., one-to-one teaching). During the 1980s, there was much more research on classroom-relevant tasks such as reading comprehension, writing, and mathematical problem solving (see Pressley & Associates, 1990). That research in particular has stimulated the deployment of strategy instruction into actual classrooms. For instance, many of the new basal reader series feature strategy instruction. Practitioner journals, such as *Reading Teacher* and *Arithmetic Teacher*, regularly publish articles encouraging classroom strategy instruction. Such teaching is of interest to teachers, administrators, parents, and researchers (e.g., Anderson & Pearson, 1984; Au, 1988; Borkowski, Estrada, Milstead, & Hale, 1989; Brandt, 1988-1989; Pressley et al., 1989), who in turn have posed many questions: Are instructional behaviors for teaching cognitive strategies similar from teacher to teacher? From day to day? What strategies do teachers teach? What happens to previously taught strategies? Do teachers encourage students to continue to use strategies they have learned? What is the pattern of teacher-student interaction during strategy instruction? These were questions addressed in this study.

The setting is Benchmark School, a school for bright underachievers in grades 1 through 8. All of the students were referred to the school because of their failure to learn to read in regular schools. Most of the 167 students entered at age 8 or 9, are of average or above-average intelligence (mean WISC-R = 115), and do not have primary neurological or emotional problems. The typical stay at the school is four years, although some students remain as long as seven years.

The primary goal of the school is to prepare students to return to the mainstream. In general, this goal is achieved. Most Benchmark students eventually return to regular public or private schools at a grade appropriate for their age; most perform at an average or above-average level during secondary school and graduate from high school.

Benchmark teaches students skills and strategies that facilitate the accomplishment of important academic tasks such as comprehending text, composing written work, and remembering information. In addition, a comprehensive strategy-based decoding program is a significant component of the instructional program (Gaskins et al., 1988). Through the course of their stay at Benchmark, students learn to apply skills and strategies that enable them to take charge of task, person, and environmental variables that influence their academic success.

A good deal about the teachers at the school was known before the research reported here was undertaken. A series of case studies (see Gaskins & Elliot, 1991; Pressley, Gaskins, Wile, Cunicelli, & Sheridan, 1991) and an interview study of the entire academic faculty (Pressley et al., 1991) established that Benchmark teachers feel a strong sense of collegiality as well as direction and support from the administration. For example, there are weekly team meetings and research seminars to discuss classroom instruction. The director and supervisors collaborate daily with teachers through planning meetings, shared classroom teaching, and dialogue journals. There are monthly inservice programs conducted by outside experts, as well as frequent meetings conducted by teachers.

The result of this collegiality and support has been the development of a shared concept of what instructional goals are important and how they can be achieved (Gaskins & Elliot, 1991). The strategies found in the Benchmark model are designed to be "flexible and adaptive for dealing with situations; [to be] consciously applied within a larger understanding of the sense-making function of reading" (Roehler, Duffy, & Meloth, 1986, p. 83). Within this context, Benchmark teachers focus on students understanding and applying major concepts (e.g., in social studies, the relationship between geography and culture) rather than on low-level student recitations of text-based facts. Thus, instruction at Benchmark attempts to bridge the oft perceived gulf that separates process and content. The two are intertwined. Content objectives are achieved through process implementation. This occurs much in the spirit of the "process-into-content instruction" described by Roehler et al. (1986).

Guided by the finding that "when teachers [provide] careful explanations about how skills are actually used, students [conceptualize] reading as a strategic process and [use] skills strategically" (Duffy & Roehler, 1987b, p. 415), instruction at Benchmark aims to be specific and explicit. This goal is achieved through the use of the following eight process "moves" for explicit instruction of strategies. These process moves are derived both from the research literature on strategy instruction and from close examination of lessons occurring at Benchmark. (a) Process and content *objectives* are specified at the outset of lessons (Roehler & Duffy, 1984). (b) Students are taught *why* it is helpful to know the strategy, (c) *when* or *where* it can be used, and (d) *what* to do or *how* to do it (Paris, Lipson, & Wixson, 1983; Pressley et al., 1989). Descriptive explanation is employed, as well. (e) Teachers *model* the use of strategies to make invisible mental processes visible (Duffy, Roehler, & Herrmann, 1988). In addition, (f) teachers share *personal experiences* to demonstrate the real-world relevance of a strategy (Gaskins, 1988b). Following teacher-centered explanation and modeling, (g) teachers provide opportunities for students to practice meaningful application of strategies. It is during this *guided practice* that teachers and students collaborate to construct meaning actively (Pearson & Fielding, 1991). Finally, (h) to maintain and promote strategy use, previously taught strategies are *cued* by teachers at times appropriate for their use (Weinstein & Mayer, 1986). (Process moves and examples of each are summarized in the top half of Table 1.) In addition to these process moves often used to initiate instructional conversation about strategy use, the Benchmark model includes the supportive comments a teacher makes in response to what a student says (Duffy & Roehler, 1987a). (Responsive comments and examples of each are summarized in the bottom half of Table 1.)

[Insert Table 1 about here.]

Given the strong presence of collegiality and leadership in the implementation of a strategic initiative, we wondered what the spectrum of resulting instruction might look like. Would the band of realizations of the curriculum be narrow or wide? What effect would the emphasis on the social construction of higher level concepts have on instructional dialogue? How would the instructional moves of the Benchmark model be realized?

The research presented here was designed to provide a detailed understanding of the structure of Benchmark's instructional conversations. To accomplish this, we studied the teaching of six teachers at the school. For each, a *unit* of strategy instruction was observed and audiotaped. (A unit was defined as beginning on the day a new strategy was introduced into the curriculum as a focus of instruction, and terminating when a new strategy was introduced as the focus strategy.) For each teacher, lesson transcripts were selected from periods near the beginning of an instructional unit, the middle of the unit, and near the end of the unit. A detailed analysis was then made of the dialogue contained in each lesson to document and analyze (a) the teacher's use of the process moves included in the Benchmark model of instruction, (b) the pattern and content of interactions between teacher and students during a unit of instruction, (c) the relationship between teacher and student characteristics and the structure of instructional conversations, and (d) the specific strategies taught or cued during a unit of instruction.

Method

Subjects

The six teachers whose instruction was analyzed differed in teaching experience, in the amount of teacher-led discussion per day, as well as in the subject matter they taught (see Table 2). Four teachers taught social studies classes and two instructed reading. All six teachers were committed to the Benchmark model of strategy instruction described in the introduction and were active participants in the many opportunities the school provides for professional growth (internships, teaching assistantships, research seminars, inservice programs, observations, collaboration, etc.).

The full range of ages and abilities represented at the school was present in the classes studied, with the particular ages and reader levels of students in each teacher's class specified in Table 2. One of the six series of lessons reported here occurred during the 1988-1989 school year. The other five were taught during the 1989-1990 school year. The lessons generally varied from 20 to 40 minutes in length, with observations spanning between 3 days and 3 weeks.

[Insert Table 2 about here.]

The teacher of the middle school students reading on a level nearest their actual grade placement was Sharon Rauch (R1). Sharon's position at Benchmark was that of middle school reading and language arts teacher, as well as trainer of teaching assistants. She began her teaching career at Benchmark 15 years ago upon completion of a master's degree in reading and special education. A case study describing six months of Sharon's strategy teaching during the year prior to this study can be found in Gaskins and Elliot (1991). The class to whom she taught the reading lessons discussed in this article was composed of 11-, 12-, and 13-year-old students reading on a fifth-reader level. All had attended Benchmark for three or more years. Sharon's reading groups tended to meet for 20 to 30 minutes each day to discuss their reading. During the remainder of the 80 minutes allocated each day for reading, the students read independently. Since beginning her career at Benchmark, Sharon has chosen to teach with a co-teacher. During her early years at the school she taught with an experienced Benchmark teacher. More recently, she has taken the role of the senior teacher. Sharon chooses to work with a co-teacher because she enjoys collaborating with another teacher regarding instruction. She extends this collaboration in her role as trainer of the Benchmark teaching assistants. This role takes her into Benchmark's 14 classrooms on a regular basis to observe, respond to, and suggest instructional procedures. Sharon claims that her daily observations of and collaboration with other teachers and their teaching assistants have greatly enriched her own teaching.

The teacher of the youngest students was Donna Blakeman (R2), a teacher with a master's degree in elementary education. Donna's first year in teaching was spent as an assistant to Susan Soja (S4), from whom she learned a great deal about strategic reading instruction. During the following two years, she taught Benchmark's youngest students. The lessons reported here were taught during Donna's third year at the school. The students in the reading group discussed here were 7-, 8-, and 9-year-olds and read on a preprimer level. The duration of the reading group in which these students read and discussed stories varied from 20 to 30 minutes.

The most experienced of the teachers was the first author (S1) who, in addition to being the principal of the school and the leader of the school's weekly research seminar, taught social studies 40 minutes a day to the group of students who were the poorest readers in the middle school. Most of these students read at a 3^2 reading level. All were 11, 12, or 13 years old.

The teacher of the oldest social studies students in the lower school was Jim Benedict (S2), who taught five 40-minute classes a week. He was not trained formally as a teacher; rather, he majored in history

as an undergraduate and in graduate school. Jim came to Benchmark after one year of graduate school and had no previous teaching experience. He had worked at Benchmark for two years prior to the year the lessons in this study were taught, and from his earliest weeks at the school was an active participant in the reading and discussing of professional articles for the research seminar. During his first year at Benchmark, Jim was a teaching assistant both in reading/language arts classes and in social studies, teaching social studies with the first author (S1) (see Gaskins & Elliot, 1991, for a case study of this co-teaching experience.) Jim was a part-time participant-observer during the 1988-1989 school year and one of the observers in the classroom of Sharon Rauch (R1). A collaboration began between these two teachers who shared many of the same students. The students taught by Jim during 1989-1990 and discussed in this article were 11, 12, and 13 years old, reading at second- and third-reader levels.

Debra Wile (S3) was a second-year teacher. Prior to teaching at Benchmark, she completed her student-teaching internship at the school as part of her master's degree program. Despite the academic load of attending graduate school and interning at Benchmark, Debra found time to be part of the school's research seminar. This participation continued as she moved from intern to Benchmark teacher the following year. During the year this research was completed, her students were all boys, ages 10 and 11, reading on a third-reader level. Her social studies lessons were chosen for analysis in this study. As a result of the vagaries of scheduling (i.e., special subjects were scheduled in such a way that she had extended blocks of time several afternoons a week), Debra had more flexibility than some of the other teachers with respect to the length of her social studies lessons. The minimum length tended to be 40 minutes; however, some of the lessons extended beyond an hour. (How Debra organized her curriculum to accomplish both process and content goals was the subject of a case study by Pressley, et al. [1991].)

Susan Soja (S4), a nine-year veteran teacher, has spent her entire teaching career at Benchmark. She earned her master's degree in reading while a teacher at Benchmark and has been a regular member of the research seminar throughout her years at the school. Prior to teaching at Benchmark, she assisted in a classroom at Benchmark as a 1-day-a-week intern. During the year described in this article, Susan taught 9- and 10-year-olds who were third- and fourth-level readers. The social studies lessons discussed here tended to be 40 minutes in duration.

In summary, the six teachers differed in teaching experience, preservice preparation for teaching, amount of teacher-led discussion, strategy and subject-matter focus, and age and ability of the students they taught. They were similar in that they shared a common vision of instruction and participated in the opportunities for professional growth provided at the school.

Data Collection

The six teachers were observed daily during a unit of study by either their supervisor (whose role was to collaborate with supervisees to provide each student with the best possible instruction) or a researcher. Lessons were audio-recorded, and the observer wrote notes about each lesson in an interactive-dialogue journal, a notebook used for daily communications between the observer and the teacher. Teachers wrote back on either a daily or weekly basis, with the schedule of journal response determined entirely by the teachers. Teachers shared their reflections on the lessons, answered questions posed by the observers, and often requested suggestions. Communication via the dialogue journals was used often to confirm or clarify researchers' interpretations of classroom events. The journals also seemed to foster instructional coherence and collegiality throughout the school, as researchers and supervisors noted in the journals such comments as

> It was fascinating to see you teach the same objective as Sue, yet approach it differently. I'm sure she would love to talk with you about the way you are transferring your objective into the homework assignments.

The teachers were also interviewed at least once so that the teachers and researchers could compare their perceptions about the employment of strategies. At the conclusion of the unit of study, the teachers responded to written summaries of the lessons.

Analysis of Instruction

Transcripts. Most of the audiotapes of the lessons in each teacher's unit of instruction were transcribed. From this corpus, three lessons for each teacher were selected for intense study: one was a lesson presented *early* in the unit of instruction, the second was selected from the *middle* of the unit, and the third was a lesson *late* in the series of lessons. No attempt was made to select the best lesson. Rather, the choice was usually determined by the most audible tape for transcription. The typist was requested to retrieve as much of the teacher and student talk as possible. However, due to students being seated at various distances from the microphone, clarity of the students' utterances was not always adequate for transcription. This was not regarded as a serious problem since the focus of study was on what the teachers said and did rather than specific student responses.

Coding grid. The coding grid was created as a means of analyzing lesson transcripts. The grid illuminates patterns of teacher-student interaction and paints a succinct picture of the instruction in each class (see Figure 1).

[Insert Figure 1 about here.]

The researcher coded the grid chronologically beginning with the first cell on grid line 1 and moving from left to right to fill in the appropriate cells representing the speech of teacher and student. The basic unit of input was an utterance, the uninterrupted unit of classroom talk made by either a teacher or student before the next person began to speak. An utterance could be composed of one word (e.g., "Okay") or many sentences. Each utterance by the teacher was examined to determine whether it (a) contained statements or questions about process, content, procedure, or behavior and whether or not any of these statements or questions initiated a new topic of discussion or (b) was a response to a student's utterance. Each process-oriented statement or question was further classified as one of the eight process moves in the Benchmark model. Responses were placed into one of five categories. If a statement or question was both process-related and responsive, it retained the process move label.

Following a teacher's utterance, student utterances were characterized as Every Pupil Response (as in a choral response), process, content, or procedure/behavior. In line 9 of Figure 1, for example, there were three utterances, and each utterance contained only one move--a teacher initiation (process "how"), a student response (about the process), and a teacher response to the student (using the student's answer to continue discussion). The remainder of this section expands on the description of the coding grid (following the grid from left to right) and relates the coding to the presence of interactive cycles. (See Figure 2 for an overview of the conceptual hierarchy of teacher/student interaction as represented by the coding grid.)

[Insert Figure 2 about here.]

Initiating utterances made by teachers were categorized as they pertained to (a) the *process* of learning or thinking as applied to particular content (e.g., how to think about content or how to implement strategies in context); (b) the *content* (usually the content of texts, lectures, discussions, etc.), without the expectation that students employ specific processing strategies; (c) *procedure* (assignments, directions, etc.); or (d) *behavior* (paying attention, completing work, etc.). Miscellaneous remarks such as, "Today we are beginning a new book..." or "Charles?" were coded in the procedure section of the grid if the appropriate category was not apparent. After an initiating statement was coded, it was copied in abbreviated form onto the grid line. These copied statements aided researchers in determining the

boundaries of interactive cycles (discussed in the next section), and they expedited the subsequent writing of transcript summaries.

If a teacher's utterance (or part of the utterance) was related to process, it was examined to determine its classification as one of the eight instructional moves contained in the Benchmark model. An utterance was considered to contain an instructional process move: if the teacher explicitly told or asked what the focus strategy was (objective) or why, when, or how to use the strategy; if the teacher modeled use of the strategy or described a personal experience involving its use; if the teacher actively prompted students to practice application of the strategy; or finally, if the teacher cued students to use a previously learned strategy. Examples of each of these instructional process moves may be found in the top half of Table 1.

Teacher and student utterances were coded "T" for "tells" or "?" for "asks." For example, if the teacher told the students, "Today we will work on taking notes on important ideas," this statement would be coded as a "T" in the "objective" column (tells the process objective of the lesson). The question, "Why do we survey?" would be coded "?" in the "why" column (asks why to use the strategy).

A student's utterance in response to a teacher's utterance was coded on the same grid line as the teacher's initiating utterance. Each additional student response before the teacher spoke again was placed on a new grid line. Each student utterance was analyzed to determine whether or not all or part of it pertained to process, content, or procedure. A unique category of student response found in Benchmark classrooms is Every Pupil Response (EPR). This form of response occurs when a teacher directs all of the students to respond to a statement or question. EPR may occur in either written or oral form.

The third utterance that may be included on a grid line is the teacher's response to a student. If the teacher responded to the student in a manner that continued the train of thought begun by the initiating utterance, the response was recorded in the Teacher-Is-Responsive section on the right side of the grid. Teachers' responses were coded in the following categories, which were designed to reflect broad ranges of responses: accept/reject, use, tell, guide, and explain thinking (see the bottom half of Table 1 for examples of each). If the teacher initiated a new line of discussion rather than responding to the student's utterance, the teacher's utterance was coded on a new line on the left side of the grid (Teacher Tells/Asks).

In determining the coding of a teacher's response, the researcher asked the following questions: Does the utterance respond to something the student said? Does it continue the thought begun by the initiating statement or question? Does the utterance initiate a new topic of discussion? Teacher comments in response to a student, such as, "Oh," "Um," or "What?" were coded as Teacher Is Responsive, usually in the "use" column. Although these responses did not necessarily move the discussion forward in an active manner, neither did they evaluate the student's response, terminate the discussion, or begin a new line of thinking.

The utterances or statements that make up classroom conversations often did not fall into single categories. For example, teacher and student utterances were often composed of several components. As a result, a single utterance may be represented by one or several grid categories, on one or several grid lines. In Figure 1, line 16, the teacher models for the students ("T") and initiates a guided practice by asking a question ("?"). In a single utterance, the teacher has made two moves (modeling and guiding practice) that are both coded in the "Process Moves in Benchmark Model" section of the grid. After three student utterances (lines 16, 17, and 18), the teacher intervenes to guide the discussion (line 18, "Teacher Is Responsive"). She first *accepts* the student's response (e.g., "Yes.") and then uses it to scaffold an improved or more sophisticated student understanding. Thus, the two moves in the teacher's utterance are coded on the same grid line.

A single utterance, however, may also span several grid lines. This results from the dictum that moves must be coded from left to right, chronologically. Lines 1, 2, and 3 of Figure 1 demonstrate this possibility. The teacher said, "Let's settle down." (behavior); "Get your notes out." (procedure, requiring a move to line 2); and "What information are we learning?" (content, requiring a move to line 3).

The coherence of instruction manifests itself in the patterns of coding on the grid. Referring again to Figure 1, lines 13, 14, and 15 demonstrate a representative segment of responsive teaching. Beginning on line 13 the teacher makes an utterance that contains one move, an initiating question regarding "why" to use the strategy being taught. On the same line, the student made a pertinent response and the teacher asked a follow-up question. Moving to line 14, the student provided an answer that was in some way insufficient. Thus, the teacher guided the student's thinking by providing additional information ("T") and following with a related question ("?"). This guidance apparently proved effective: The student responded on line 15, and the teacher initiated a new line of discussion in her next utterance (line 16, the teacher modeled the strategy). These utterances compose what we refer to as an *interactive cycle*.

Interactive cycles. An interactive cycle is composed of all utterances about or in the service of the topic raised by an initiating move, and includes the initiating move itself. The cycle ends when the teacher introduces a new topic for discussion or evaluates a student's response without encouraging elaboration or further thought on the part of a student. Interactive cycles follow the categories established for instructional moves: process-content, content-only, or procedural-behavioral. The nature of the cycle is determined by the subject of the initiating utterance and ensuing dialogue. Instructional moves do not always begin new cycles, however. They may be included within cycles if they are in the service of the initiating utterance. For example, a teacher may need to model a strategy several times to effectively demonstrate its use, etc. Procedural moves also may be made within a cycle ("Take out your textbooks, notebooks, etc."). *Responsive* teacher-student interaction characterizes the interactive cycle. Interactive cycles, therefore, must consist of at least the following: an initiating question or comment (by either teacher or student), a response, and a minimum of two additional related responses. Thus, an interactive cycle is a block of responsive teaching pertaining to a single topic of instruction. One lesson may be composed of a number of interactive cycles, and may include nonresponsive (and therefore noncyclical) utterances. Interactive cycles can focus on process-content, content-only, or procedures and/or behavior.

The roles of initiator and responder may be played by teachers and students alike. Teachers' remarks, however, must continue the interaction about the initiating utterance. That is, the teacher's comments or questions are responsive to (rather than primarily valuative of) students' questions and comments. Responsiveness may take many forms. For example, the teacher may encourage elaboration, seek clarification, or provide additional information that supports a student's improved and/or continued contribution to the discussion. Lines 13-15 of Figure 1 (described above) constitute an interactive cycle. Lines 9-12 and 16-20 of Figure 1 also demonstrate patterns of interactive cycles.

Consider the following exchange between a teacher and student:

T: Why do you survey before you read? (Initiating question)
S: To get an overview. (Student response)
T: Why is an overview important? (Seeks elaboration)
S: So you understand it when you read it. (Student response)
T: It is related to understanding. You're on the right track. How does surveying help you understand? (Confirms student response, encourages, and seeks elaboration)

The teacher proceeds in this manner, supporting the students as they develop a rationale for surveying. Because all of these moves continue the topic raised by the initiating question, "Why do you survey before you read?" all of the above is considered one interactive cycle. A new cycle begins when the

teacher initiates a new topic of discussion, "Will someone model his or her thinking while surveying the next three pages?"

A less conservative definition of an interactive cycle might include this latter question as part of the first cycle ("Why do we survey?"), suggesting that the topic "surveying" was continued. We argue that the topic of the first question addresses the "why" of the objective, whereas the second question addresses the "how." When coding the transcripts, whenever there was a doubt as to whether a statement initiated a new cycle or continued a cycle, the cycle was defined in a conservative manner.

In order to code the teacher's and students' utterances as either initiating or continuing an interactive cycle, the researcher asked this question about each utterance: "Is this statement or question an attempt to continue the discussion of the last initiating statement or question I coded or does it introduce a new aspect of the same topic or an entirely new topic?" Consider the following dialogue in which a teacher conducts a lesson by asking a series of specific questions about a topic, with each question followed by a student response and the teacher's comment about each response:

T: The chapter was about explorers.
S: --student response--
T: Very good. Where did DeSoto explore?
S: --student response--
T: Correct. What was his motivation for exploring?
S: --student response--

Even though all of the questions were about the same general topic (explorers), each question introduced a new aspect of the topic. The latter question was not *an attempt to continue the discussion of the last statement or question coded as an initiation*. By contrast, had the teacher initiated discussion by asking students, "Compare the different reasons European countries had for sponsoring explorers," the questions in this example would be regarded differently. Given the framing provided by this initiating directive, the two questions would act to guide students in the construction of a more complex understanding. These statements, together with the new initiating statement, compose an interactive cycle.

Confirming Coding Accuracy

Several procedures were employed to confirm the accuracy of interpretation of the transcripts. Coding took place in two rounds, summaries were written, and feedback was taken from both teachers and observers. Two researchers collaborated to transfer initial data from lesson transcripts to grids. One read from the transcript, an utterance at a time. Both researchers then decided the number of moves present in each utterance and the grid category into which each move fit. The researchers then explained and defended their rationale for each choice. If the two disagreed, they reread the definitions for the possible categories and discussed the utterance until consensus was reached. The second researcher then entered on the grid the code upon which they had agreed. As each grid line was completed, the number of the grid line was placed in the margin of the transcript, alongside the appropriate utterance. Completing a grid for a transcript in this manner generally took two to three hours.

The second round of transferring the transcript data to grids was completed by the first author. She read the transcripts, utterance by utterance, and decided on a category for each move. Her coding decisions were then compared to those entered on the grid during the first round. Where differences occurred, the first author reread the transcript and category descriptions until she could reconcile the disparity.

After the second round of completing the grids for each teacher's lessons, the first author listed each move in the order spoken on a separate sheet of paper beneath the category definition for which it had been coded. In this way the researcher checked the categorization of each move and the consistency with which the definitions had been applied. When the grid for a transcript was completed, summary notes were written in the right-hand margin.

After coding each teacher's lessons, a formal summary was written for each using a summary form (see Figure 3). The summary was created as a means of reporting the manner in which teachers carried out the various moves deemed theoretically important in strategy teaching. Information to complete the summary form was gleaned from the coding grids, with occasional reference to the original lesson transcripts, to an interactive dialogue journal, or to the transcript of an interview with a teacher.

[Insert Figure 3 about here.]

Following Lincoln and Guba's (1985) recommendation, member checks of the summaries were made. That is, once the summaries of the three lesson transcripts for each of the six teachers (18 lessons) were completed, the summaries and grids were given to the teachers and the observers for their opinions regarding whether each summary was an accurate statement of what occurred. The teachers and observers were encouraged to write comments in response to any of the documents. There were three instances in which teachers felt that researchers omitted coding a process move. In each of these cases the researchers had correctly identified the utterance as responsive and coded it as such in the Teacher Is Responsive section of the grid. The teachers pointed out, however, that parts of each utterance re-explained or cued the use of a strategy and should therefore have been coded in the Teacher Tells or Questions section, as a process move. This difference in perception highlights the fact that process moves may themselves be responsive. The grids and summaries were adjusted to reflect the additional moves.

Results

In this section, we summarize the instructional process moves made by the six teachers and then examine the cycles in which these moves were embedded. We then discuss whether the structure of the teaching varied as a function of student or teacher characteristics, and analyze the specific strategies taught or cued in the classes.

Instructional Moves

Based on previous work at the school and pilot testing for this study, we anticipated that the eight types of instructional process moves described earlier would occur in each of the teachers' lessons. Results demonstrated that each of the moves was present in a majority of the lessons, with at least seven out of eight moves occurring in over three quarters of the lessons. All of the moves occurred in 33% of the lessons, with all four of the social studies teachers offering at least one lesson containing all moves. Neither of the reading teachers presented a lesson containing all moves. Another 44% of the lessons included seven of the eight moves. This pattern was observed in one half of the reading lessons and 42% of the social studies lessons. At least half of the eight moves were present in all lessons except for the middle and late lessons offered by R1.

Thus, although the eight moves were common in the lessons, they were slightly less common in reading than in social studies lessons. On average, each of the eight moves occurred in 85% of the lessons. The moves were equally prominent in early, middle, and late lessons, one-way ANOVA F (2, 10) = 0.55, p > .50 (see Kirk, 1982, for this and all statistical references), with 7.17 of the 8 move types, on average, in the early lesson, 6.5 of 8 in the middle lesson, and 6.67 in the late lesson.

The least frequent move was specifying when to use a strategy, occurring in 55% of the lessons. The next least frequent move was modeling. It occurred in 78% of the lessons.

All but one of the teachers introduced the process objective of each lesson. Teacher R1 provided this information only in her early lesson. In general, however, this teacher's middle and late lessons contained fewer of the instructional moves than the other teachers' lessons. Therefore, the omission of the objective information is probably not particularly significant. (This omission may be related to R1's teaching the students at the highest reading level.)

There were two moves that all six teachers included in each of their three lessons: (a) The teachers initiated guided practice by asking students to use the strategy or process while they gave feedback to guide students in successful implementation of the strategy or process; and (b) the teachers cued or told students to use (or asked a question about using) previously learned strategies that were not the focus strategy for the lesson.

Teachers initiated guided practice of a process objective in a number of ways. In her social studies lesson, teacher S3 initiated guided practice of picturing during reading:

> T: You might think about what kind of Indians or what the houses looked like of the Indians who were living in the southwestern part of the United States. What might the explorers have seen...what would they have seen in the southwestern part of the United States?

Teacher S1 initiated guided practice during a social studies lesson in this way:

> T: All right. Let's see if anybody, based on your notes and without looking at your book, can summarize what we talked about yesterday. Just based on those notes. Take a minute to look at them because you have to "take five" to reflect on your notes. I'm going to call on Helen, then I'll call on some others of you to tell me if you agree or not; but take a minute to look at those notes because you never want to summarize just trying to do it off the top of your head. That wouldn't be a smart thing to do. Take time to reflect.

Cuing may be employed at any time during instruction. In the excerpt cited below, teacher R2 was preparing her class of young preprimer readers to read a new story. In this context, she cued the students to implement a process that entails surveying the story; relating background knowledge to information learned in the survey about the central story problem, setting, and characters; and making predictions. This cuing was accomplished by a statement and a question that initiated a process-content cycle:

> T: Earlier this year we talked a lot about the kinds of things we do before we read. What are the kinds of things we do before we read?

Teacher R1, after working through a process of analyzing the task of reading a new novel with her students (the process objective), cued them to think of further strategies that could be employed:

> T: You have really hit on what could make this book difficult: vocabulary, concepts and the unusual names, and background knowledge. Now, what strategies, then, can we use to make this less difficult? Can you think of one strategy that we can use that will help us make this book, which, believe me, is very worth our while to read--make it fun to read?

In summary, teachers tended to incorporate many of the instructional moves of the Benchmark model into their lessons. At least seven out of the eight moves were used in most lessons. All lessons included guided practice of a focus strategy and cuing of previously learned strategies.

Cycles of Instruction

We examined the manner in which instructional moves were organized, in particular, whether they were organized in instructional cycles of responsive teaching. Interactive cycles represented an average of 88% of each lesson (over 18 lessons), ranging from 64% to 100% (see Table 3). Each lesson included between five and 18 process-content cycles, mean = 9.66 (*SD* = 3.77). On average, the process-content cycles accounted for 70% of the grid lines in each lesson. Each lesson included between 0 and 11 content-only cycles, mean = 3.50 (*SD* = 3.81). Averaging across the 18 lessons, 15% of the lesson grid lines were spent in content-only cycles. There were between 0 and 7 procedural-behavior cycles in each lesson, mean = 1.22 (*SD* = 1.66). Averaging across the lessons, 3% of lesson grid lines were consumed by procedural-behavioral cycles.

[Insert Table 3 about here.]

When the proportions of lesson time were entered into a 3 x 3 (types of cycles: process-content, content-only, procedural-behavioral X time of lesson: early, middle, or late) analysis of variance with repeated measures on both factors, there was a significant effect for type of cycle, F (2,20) = 52.01, p <.001, with more process-content activity than either of the other two types of cycles (p <.05, Tukey's criterion). There were no reliable differences in the proportions of lesson time devoted to cyclic activity in the early, middle, and late lessons: F (2,20) = 1.08, p <.37. In addition, the type-of-cycle X time-of-lesson interaction was trivial, F (4, 20) = 0.57, p >.68.

On the average, 12% of the lesson grid lines did not fit the definition of interactive cycles. Some were statements by teachers or students that required no verbal response (e.g., Figure 1: "Let's settle down." [line 1]; "Get your notes out." [line 2]). Others were cases in which the teacher was not responsive to the students but simply evaluated a student response or began a new topic of discussion (e.g., Figure 1, lines 3-7, where specific review questions were asked about the content the class had already studied).

In a process-content cycle, the teacher uses content as a vehicle for discussing the learning-thinking process. When a teacher responds to what a student offers in discussion, the teacher's primary focus is not on the content of the student's response; rather, the teacher's interest is in guiding the student in how to think about information. The goal here is understanding content through the use of effective thinking processes.

The process-content cycle cited below demonstrates the intertwining of process and content. In this social studies lesson, the content is the developing industry of the Puritans in colonial Plymouth. The process emphasized by the teacher (S2) is students' thinking about the "big ideas" behind the notes they are writing. Note that the teacher's responsiveness may take several forms.

> T: What I want to concentrate on today is getting the correct information down in our notes, but more importantly, what? What do you have to think about as you look at the notes I am putting on the board or as you look at your own notes? Having notes does nothing for you--it's just a bunch of words on a piece of paper. You have to be thinking something, too. Tom? (The teacher asks about the "what" component of the strategy, i.e. what do you have to do when taking notes?)
>
> S: See if you have the right information.

T: That's one thing to do, but more importantly, what do I think? Do I just rattle off a bunch of points totally unconnected? Rocky--forests--rivers--settlers. No. What do I want to do when I see rocky in my book? What goes on in the brain as soon as you look at the word rocky? If I am taking notes, I might put something like rocky down, but there is a lot that goes on behind my putting that down on a piece of paper. I spent 5 minutes thinking about it maybe before I put rocky down. What questions do I ask myself about rocky? (Teacher confirms the student response and then begins guiding the students to understand both the content of the lesson, and the strategy involved.)

S: If you understand where rocky goes and what is rocky, you know--, well....

T: What does this mean? Rocky what? (Seeks clarification.)

S: Rocky, where is it? Is it land or....

T: You know that big question for the day, "So what?" So what if the place is rocky? Do I care if it's rocky? Is that important? I don't think it is very important right now. I am thinking to myself, "Big deal, it's rocky. Big deal, they had forests. I'm not even going to take a note on it." That's what I am thinking. I am pretending I am a student. If you guys want to be a teacher, feel free to argue with me and point out, enlighten me what rocky has to do with anything. Because I would rather leave it out of my notes and save some time. (Challenges students to elaborate and extend their thinking.)

S: Rocky is the land form and that is how they--that is the land form and it tells you what....

T: The land is rocky. What does that tell you? (Repeats the student response and seeks elaboration.)

S: It tells you how they lived.

T: That tells me how they lived? (Seeks confirmation.)

S: No. How people....

T: How do they live because it is rocky? (Seeks elaboration.)

S: Well, the different kinds of jobs the people do.

T: I don't get it. It was rocky ground. Oh, big news. (Seeks clarification.)

S: Well, then they can't farm because of the rockiness. So it affects their way of life.

T: I'm going to add that in there. Do you think I should add that in my notes? (A guided practice move, as the teacher explicitly asks students to apply the strategy in the context of content.)

[The cycle continues in this fashion until a student seeks to clarify a question about a new subject.]

Process-content cycles such as this one account for an average of 70% of the instructional grid lines in each of the 18 lessons.

In contrast to a process-content cycle where the focus is on *how* to think about information, the content-only cycle deals with *what* information the students should be thinking about without strategy cues as to how to process the information. In the following transcript excerpt, teacher S3 guides students to integrate much of the information from a three-page section of text. Note that the teacher is also responsive in a content-only cycle.

T: Why did Anne Hutchinson and Roger Williams leave the Massachusetts Bay Colony? (Content question.)

S: Well, because they didn't like the way the people were running it.

T: Start again. I'm not sure who you're talking about. Who didn't like it? (Seeks clarification.)

S: Anne Hutchinson and Roger Williams. They left because they didn't like the way the Puritans and people....

T: Does anybody want to add anything to that? (Seeks elaboration.)

S: Roger Williams was voted to be expelled.

T: Ben was saying that Roger and Anne didn't like the way the Puritans were running Massachusetts Bay. Not only that, but the Puritans didn't like what they were doing so they kicked them out. The main group of people, the authorities, said "We think you're too different. We don't like you; therefore, you must leave." (Summarizes student responses. Provides elaboration.)

S: I think that's unfair.

T: Ken?

S: Didn't they expel Roger Williams, didn't they say if we see you in Massachusetts, he would get in trouble or something?

T: You know, it doesn't give us enough information in our book to really know that, but keep that in mind when we do reports and find out what happened to him and how he did what he did. (Explains thinking.)

S: I think that was fair because it was freedom of religion, and the way they ran the system was that if you didn't follow our rules and you didn't do what we believe and if you didn't do what we did, then you don't belong here, you should leave, we don't want you here.

[End of cycle. In the next transaction a student asks a question about another topic.]

Content-only cycles like this one comprise an average of 15% of the instructional grid lines in each of the 18 lessons. Together, process-content and content-only cycles represent the vast majority of instruction; 85% on average, over the 18 lessons. In summary, the most significant finding in the analysis of cycles of instruction is that the great majority of instructional dialogue occurred within interactive cycles, when teachers were responsive to students.

Student and teacher demographic variables. The mean proportions of lessons devoted to each of the three types of cycles were correlated with three quantitative demographic indices: the mean ages of the

classes, the mean reading levels, and the number of years the teacher had taught at Benchmark. The most striking relationship was with age of the students. Older students experienced higher proportions of process-content cycles, $r(4) = .98$. The converse was also true, the younger students experienced more content-only and procedural-behavioral cycles, $r_s(4) = -.74$ and $-.56$, respectively. The correlation between reading level and mean proportions of process-content instruction was .76, with the corresponding correlations of -.67 and -.14 for content-only and procedural-behavioral cycles, respectively. Teaching experience at Benchmark correlated .65 with the mean proportion of process-content cycles, with the corresponding correlations for content-only and procedural-behavioral cycles both equal to -.61.

Thus, process-content instruction was more prevalent with older students at higher reading levels and with more experienced teachers. (Because of the small number of cases in this study, nothing like stepwise regression was possible to determine if any of these variables is an incrementally valid predictor of the use of the three types of instructional cycles.)

In summary, the most significant finding in the analysis of student and teacher characteristics is that classes differed in the number of transactions that fit each of the three types of interactive cycles. These differences tended to be related to age of students, experience of teachers, and subject matter.

Strategies taught in a lesson. Although teachers tended to select only one or two strategies for instructional focus during a unit of instruction (summarized in Table 2), they cued numerous strategies to aid the implementation of the focal strategies (summarized in Table 4). On average, teachers cued eight non-focus strategies across the three lessons. Each of the non-focus strategies was cued by 1.92 of the teachers, on average, and was cued in 3.28 of the lessons, on average. The most frequently cued strategies were asking for clarification, visualizing or picturing, surveying, accessing background knowledge, and having materials open to the right page when class begins. Thus, the use of multiple strategies was orchestrated in any given unit of instruction.

[Insert Table 4 about here.]

The diversity of strategies represented in the lessons can be understood by considering the instructional units of two teachers. Throughout the early, middle, and late lessons, teacher S2's objective was for students to take notes on important ideas. In addition, in the middle lesson, he added an organizational objective of creating study sheets on which the students took notes. Teacher S2 cued many other strategies in the service of applying the focus strategy to understanding and remembering the social studies content of the lessons. These included (a) seeking clarification during class discussion, (b) self-questioning, (c) listening for assignments, (d) monitoring understanding, (e) adding notes from classroom discussion to homework notes, (f) using section-end questions, (g) highlighting key words as cues to important ideas, (h) reviewing teacher comments on homework papers, (i) asking for clarification about these comments, and (j) comparing or contrasting a new idea to something similar and familiar.

Over five months, teacher S3 stressed awareness of various text structures and the ability of students to use this awareness to organize their understanding of nonfiction material. During the three weeks studied for this analysis, this teacher's objective for her early and middle lessons was to teach students to self-question about cause-and-effect possibilities in text. This strategy was expanded to accomplish her late-lesson objective of teaching students to plan cause-and-effect essays. She cued a number of other strategies as students practiced the cause-and-effect strategies: seeking clarification, surveying, using boldface type, accessing background knowledge, picturing, and being prepared with notebook opened when class begins.

In summary, units of instruction were carefully orchestrated to meet students' needs. Numerous

previously learned strategies were cued by teachers to complement and facilitate the implementation of the two or three focal strategies.

Discussion

Despite the diversity represented by the six teachers and their classes, there was considerable fidelity to a particular vision of instruction. The relatively narrow spectrum of realizations of the Benchmark curriculum that occurred in these classrooms appears to reflect the collegiality among the staff and a shared core of knowledge and beliefs about how teaching should occur at the school. Evidence for this collegiality and shared core of knowledge and beliefs can be found in the demographic information about the six teachers, as well as in the school's tradition of instructional change (Gaskins, 1988a). For example, each teacher had a part in training at least one other of the six teachers through internships, assistantships, or peer observations and, as a result, often became the informal mentor for that teacher. (For further discussion of the mentor phenomenon, see Little, 1989.) In addition, theory was combined with the wisdom of practice (Leinhardt, 1990) as the teachers shared ideas about instruction via interactive-dialogue journals, weekly meetings with supervisors, weekly research seminars, regular meetings with the principal, occasional weekend retreats, and monthly inservice meetings. The teachers' involvement in these activities suggests that professional growth, communication, reflectivity about instruction (Schon, 1982), and collegiality were valued and ongoing among the staff. (See Pressley et al., 1991, for extensive documentation of this last point.)

These shared values regarding professional growth, communication, reflectivity, and collegiality appear to account in large part for the instructional cohesiveness demonstrated in this study. The teachers were members of a community of learners who for a number of years had delineated instructional priorities (e.g., developing strategic learners across the curriculum), then studied, discussed, and applied relevant professional literature to the development of classroom practices that addressed these concerns and priorities. As instructional practices were being developed and refined, they were shared, observed, and critiqued by staff, as well as by educators beyond the confines of the school who made monthly visits to the school. The result of this process was the constant reshaping and/or refinement of each teacher's instructional practice. Those who joined the staff later profited from what had gone before, most often by beginning their tenure at the school as interns or teaching assistants. The values and practices that led to instructional cohesiveness are similar to Joyce's (1991) five "doors to school improvement." Based on his review of the work of educators prominent in the current restructuring movement, Joyce suggested that collegiality, research, site-based information, curriculum initiatives, and instructional initiatives were doors that should be simultaneously opened in order to improve instruction.

It may not be surprising, therefore, that particular teacher moves consistent with the Benchmark staff's shared teaching model were common during the instruction sampled by the present study. The process objective of the lesson was usually made clear, with information either presented to students or requested of students about how to carry out strategies and why strategies are important. The teachers modeled use of strategies and related their personal experiences with strategies. Guided student practice of focal strategies was the norm, as was cuing students to use specific strategies that had been acquired previously. These instructional moves were not, however, implemented in a set manner. Instructional moves were personalized by each teacher to meet the needs of students and the demands of the task.

During this process instruction, teachers also provided explicit information about when to use strategies or prompted students to provide such information themselves. However, the "when" move was not used as frequently as other moves that seemed to be equally valued by the teachers. In discussing this with the six teachers, they expressed the feeling that reminding students that the strategies they were teaching could be used in a variety of situations (science, health, math, etc.) had become trite and meaningless. The teachers suggested that a more meaningful approach to the "when" move would be to ask each student to report specific instances and benefits of having used the focus strategy. Teachers who tried

this approach reported that students who were able to share these experiences seemed to demonstrate an increased awareness of, and perhaps even increased use of strategies. (See Pressley et al., 1991, for interview data confirming the lack of "when" instruction in these classrooms.)

These Benchmark teachers maintained a consistent emphasis on students constructing an understanding of what they were reading or studying by flexibly using strategic processes. Teachers interacted with students to help them transform information into meaningful concepts that could be referenced and stored in organized ways in long-term memory (in contrast to a focus on simple recitation of facts) (Roehler & Duffy, 1991). In the service of these higher order goals, teachers were responsive to students' developing constructions of knowledge. They guided and supported students' thinking rather than searching for correct answers. The result was extended and connected classroom discourse that we refer to as interactive cycles and have further elaborated, in collaboration with researchers at the University of Maryland and teachers in Montgomery County, Maryland, as transactional strategies instruction (Pressley, et al., in press).

Teachers and students were engaged in responsive interactive cycles from 64% to 100% of each lesson. Moreover, the majority of the interactive cycles found here (70%) involved explicit instruction about applications of strategic processing to content and/or practice applying these strategies to content (we termed this latter instruction "guided practice"). During this time, teachers provided feedback similar to that described by Duffy and Roehler (1987a) as "responsive elaboration"; teachers assessed students' understandings and provided more explanation for students to use in the construction of knowledge. Explanation, however, was not the only technique these teachers employed. Using an array of responses, teachers frequently sought student elaboration, clarification, or explanation of reasoning. They also repeated, rephrased, or summarized student responses in an effort to stimulate further thought. More directly, teachers suggested conceptual directions to students by providing new information, examples, or non-examples, as well as explicit explanation of content or process. In each case, initial student responses were not accepted as terminal responses. Teachers sought additional processing consistent with the content and strategy of instruction.

Thus, if summarizing a passage were the focal activity for a lesson, the teacher would ask a student to summarize the content being discussed. After an initial attempt, the student might be prompted to elaborate. Alternatively, if the initial summary were reasonably complete, the student might be asked to explain the thought process used in producing the summary. Typical transactions contained student responses followed by teacher responses asking for more from the students, followed by student responses, etc. Series of question-and-answer routines like those observed in studies of more conventional teaching (e.g., Bloome, 1989; Cazden, 1988; Mehan, 1979) were not observed in the 18 lessons studied here. Benchmark teachers did not present questions about content, followed by student reactions, followed by simple evaluation of the correctness of answers before moving on to the next, possibly unrelated question, or in the case of wrong answers, to other students (i.e., initiate, respond, evaluate--IREs; Mehan, 1979). Rather, whether students were on the mark or not with their responses, teachers provided feedback that sustained student involvement and processing, prompting students to think more about the topic and develop more sophisticated understandings. These findings are in contrast to those of most current researchers of classroom conversations (e.g., Alvermann & Hayes, 1989; Armbruster et al., 1991) who found that teachers focus more on "right" answers and less on using strategies to construct meaning.

Cuing students to use strategies plays a crucial role in the maintenance of previously learned strategies and in a student's evolving ability to apply strategies in a variety of settings (to transfer the skills). A widely held understanding in this regard is that teachers promote a gradual release of responsibility, eventually placing all of the responsibility for completing a task (and employing the appropriate strategies to do so) on the student (Pearson & Fielding, 1991). However, in a detailed interview study (Pressley et al., 1991), Benchmark teachers reported that they did not decrease the amount of cuing that occurs as instruction of a strategy proceeds, rather, they claimed to increase the demands on students.

In the lessons studied here, there was no evidence of decline in cuing of strategies from early to middle to later points in an instructional sequence. This is consistent with the previous claim that cuing does not decrease; rather, strategy use in new and more challenging situations is cued.

A large number of important strategies were cued during these lessons. Although most strategies were cued infrequently (none in more than 7 of 18 lessons), this may be due to the differing subject matter and curricular objectives of the teachers. Another interpretation of this finding might be that the lessons were not monotonous or routine with respect to the processing that was encouraged.

Although, as noted earlier, there was extraordinary instructional cohesiveness among the teachers with respect to the Benchmark model of strategy instruction, there were also some striking differences, particularly as related to the age and reading level of students. It appears that the teachers of the older students who read at higher reading levels perceived their students as able to profit from a higher proportion of process-content instruction than was true for the teachers of younger students at lower reading levels. In lower level classes, teachers devoted more of their instructional time to teaching content only and, to a lesser degree, dealing with procedural and behavioral issues. The greater emphasis on content only in the lower level classes may be due to the students' inability to read the texts independently. Therefore, teachers needed to focus first on content in order to establish a knowledge base for strategic processing. In contrast, the older, better readers possessed adequate reading ability and background knowledge to deal with both content and process simultaneously.
It appears that the teachers of the younger students at lower reading levels believed that, at least in some situations, immersing students in content (Prawat, 1991) (as opposed to embedding strategy instruction in content, as in the Benchmark model) was the more appropriate approach to instruction. The immersion approach, like the Benchmark model, regards instructional conversation as key, yet views ideas rather than processes as the higher priority. It seems, however, based on the high proportion of process-content instruction among the six teachers of all ages and reader levels, that the teachers regarded process as a priority equal to ideas once a knowledge base had been established. These findings suggest that the choice of an appropriate instructional approach was dictated by the situation (e.g., age, reader level, knowledge base), a finding supported by other researchers as well (e.g., Lampert & Clark, 1990). Thus, the lower proportion of process-content instruction provided for the younger, poorer readers suggests that the teachers "fine-tuned" instruction to fit particular situations (Anderson, 1989).

A second difference among the teachers was that more experienced teachers tended to present lessons with a higher proportion of process instruction combined with content than did less experienced teachers. This finding suggests that understanding and orchestrating process, content, procedures, and behavior during a lesson may be difficult in a teacher's early years of teaching, even when the teacher takes advantage of frequent opportunities for professional growth. Thus, although less experienced teachers possessed adequate subject knowledge, pedagogical knowledge, and curricular knowledge (Shulman, 1986, p. 26), considerable classroom practice and feedback appear necessary to develop instruction characterized by a high degree of emphasis on the process of learning. That process instruction is complex and may take considerable practice, in addition to knowledge, is substantiated in Duffy's (in press) recent study of four strategy teachers. Duffy attributed the difficulty of strategy instruction to the need for teachers to coordinate several facets of instruction. According to Duffy (in press), good strategy teachers must (a) immerse students in the *act* of being strategic, (b) provide explicit explanations and guidance regarding the *concept* of "being strategic," and (c) directly teach students *how to* do the individual strategies they need to be strategic. To manage content, procedures, and behavior in addition to orchestrating multifaceted process instruction may be a particularly challenging task for novice teachers.

In summary, we found that in a school that is characterized by leadership, collegiality, and a shared vision of instruction, the resulting instantiations of the curriculum formed a narrow spectrum. Despite

differing backgrounds and perspectives, teachers managed a consistent emphasis on the use of cognitive and metacognitive strategies for the construction of understanding, as well as maintenance and application of that understanding. As a result, their lessons attained a degree of instructional cohesiveness not usually cited in the recitation literature. Instructional moves outlined in a model of strategy instruction were employed consistently, although there was room for individual variation. As teachers endeavored to guide their students to attain higher levels of understanding and remembering, they interacted responsively with students. Duffy and Roehler (1987b) describe this responsiveness as: "the heart of instructional effectiveness, because it is teachers' sensitivity to students' restructuring and their responsiveness to these understandings which determine what students ultimately come to understand" (p. 417). Instruction in Benchmark classrooms included little aversive control. Indeed, the lessons were so well structured that little time was spent on management. That is, only 3% of the lessons were devoted to procedural-behavioral cycles. These classrooms were convivial and efficient educational environments.

Educational research is often conducted in schools by outside investigators for relatively brief periods of time. In our effort to study instruction at Benchmark, staff members were enlisted to participate actively in a teacher-researcher joint venture. Although nervous initially, teachers involved in the project came to view daily observations and interaction through dialogue journals as a stimulus for professional growth. They appreciated having a researcher or supervisor collaborate with them to develop a unit of study. The result was that involvement in the research project improved their teaching. (For elaboration on teachers' responses to the change project, see Gaskins, Cunicelli, and Satlow, in press). We believe that our study promoted teachers' professional development and helped sustain the use of a process approach to instruction. Thus, we are convinced that in-house instructional research can be an integral facet of effective instructional reform, for, like Duffy (in press), we believe that the key to instructional improvement is the minds of teachers.

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Table 1

Instructional Moves and Examples

Process Moves[1]	Definition	Example
OBJECTIVE of Lesson	Tells or asks what the objective/process is or what the class is learning.	"Our objective is to take notes on important ideas." (explicit) "Before beginning, we must analyze the task." (implicit)
Information About WHY	Tells or asks why objective/process is important	"Putting notes in your own words is a way to check your understanding." "It's easier to remember if you attach it to something you know."
Information About WHEN/WHERE	Tells or asks when or where the objective/ process can be used.	"Use notetaking when you will be accountable for remembering." "It is a good idea to analyze what you have to do before you begin doing it."
Information About WHAT/HOW	Tells or asks <u>what</u> one does or should be aware of (w). Provides an explicit explanation for <u>how</u> to do the objective.	"Find the main ideas and write a sentence about each." (w) "To figure out cause and effect ask what happened and why it happened." (h) "Stop and ask yourself: who, what, when, why, how. That's one way to self-question."
MODELING	Shares his/her thinking while using the process or objective.	"I'm picturing their boat, but I have a fuzzy picture of the scene they saw from the boat." "I just read the paragraph and I am thinking to myself, 'What was that mostly about?'"
PERSONAL EXPERIENCE	Tells story about how using the objective has proved helpful to self or others.	"Before I learned to write summary sentences about each paragraph, I used to study by reading a chapter five times." "It takes my son forever to tell about a movie because he doesn't know the strategy for summarizing."
GUIDED PRACTICE	Tells students to put the strategy to use while s/he gives feedback.	"Collect information about how they lived and put it on one piece of paper." "Turn the bold face type into a question, then read to answer it."
CUE	Tells students to use (or asks about) previously learned strategy.	"Be sure to ask for clarification." "Use the easy-reading books to increase your background knowledge."
Teacher is Responsive		
Accept/Reject	Explicitly tells that the response is correct or incorrect.	"Yes." "That's right." "Okay." "No." "That's not it."

Use	Uses what student says to continue discussion on initiating comment or question, without guiding student thinking.	"You think that . . ." "That's one interpretation, what else could it mean?"
Tell	Tells correct response or answers student question regarding the initiating comment or question.	"One major idea is how they came to North America."
Guide	Provides support for student to formulate a response.	"Major ideas are often found in bold face type." "You are on the right track, look on page 56."
Explain Thinking	Explains how one might think about situation being discussed.	"When I was looking for major ideas, I thought of the bold face type." "I was thinking that there was a lot about growing up in that chapter."

[1]Moves listed as Process Moves may become part of any one of the Responsive Moves. For example, the teacher may use what a student said, then follow with an explicit strategy cue related to the topic or theme initiated by the teacher in her last utterance.

Table 2

Characteristics of Teachers, Students and Lessons

Teacher[1] (Years at Benchmark)	Subject Lesson Dates	Students	Lessons (Duration and Focus)	Content
R1 15 years	Reading 11-6-89 11-16-89 11-29-89	11-13 year olds 5th reading level 3+ yrs Benchmark	20-30 minutes/day Analyze the task, Recognize and classify clues to themes.	*The Book of Three, The Black Cauldron* (Alexander, 1964, 1965)
R2 2 years (1 yr prior was teaching assistant for S4)	Reading 1-8-90 1-19-90 1-29-90	7-9 year olds preprimer level 0 yrs Benchmark	20-30 minutes/day Summarize.	Preprimer basal readers (Durr, 1981, 1986a, 1986b)
S1 18 years	Social Studies 10-18-88 10-19-88 10-20-88	11-13 year olds 3[2] reading level 3+ yrs Benchmark	40 minutes/day Access background information, Organize notebooks, Put text in own words.	Reconstruction
S2 2 years (1 yr as co-teacher with S1, observer of R1)	Social Studies 1-16-90 1-17-90 1-31-90	11-13 year olds 2nd - 3rd levels 0-6 yrs Benchmark	40 minutes/day Take notes on important ideas, create study guides of notes.	Colonial New England
S3 2 years (1 yr was internship at Benchmark for certification)	Social Studies 1-10-90 1-18-90 1-30-90	10-11 year olds 3rd reading level 1-3 yrs Benchmark	40-60+ minutes/day Self-question for cause/effect, plan a cause/effect essay.	Early explorers
S4 9 years	Social Studies 11-8-89 11-13-89 11-20-89	9-10 year olds 3rd-4th levels 1-3 yrs Benchmark	40 minutes/day Self-question, picture.	Colonial New England

[1]All teachers except S1 had taught their entire career at Benchmark. S1 was the director of the school at the time of these lessons and had 32 years teaching experience.

Table 3

Presence of Interactive Cycles Within Lessons

	% of Lesson Involving Interactive Cycles	Total Number of Interactive Cycles	Interactive Cycles Devoted to Process/Content			Interactive Cycles Devoted to Content Only			Interactive Cycles Procedure/Behavior	
Teacher/Lesson	% of Total Grid Lines		# of Cycles	# Grid Lines	% Total Grid Lines	# of Cycles	# Grid Lines	% Total Grid Lines	# of Cycles	# Grid Lines
R1/Early 2	98 (81 of 83 grid lines)	10	8	71	86	1	8	10	1	2
R1/Middle --	99 (111 of 112 grid lines)	9	7	90	80	2	21	19	0	--
R1/Late --	100 (138 grid lines)	9	7	116	84	2	22	16	0	--
R2/Early 4	71 (69 of 97 grid lines)	16	9	47	48	6	18	19	1	4
R2/Middle 1	88 (128 of 145 grid lines)	21	9	59	41	11	67	46	1	2
R2/Late --	85 (158 of 186 grid lines)	26	15	102	55	11	56	30	0	--
S1/Early 2	92 (116 of 126 grid lines)	10	9	113	90	0	--	--	1	3
S2/Middle --	88 (42 of 48 grid lines)	5	4	42	87	0	--	--	0	--
S3/Late --	82 (88 of 107 grid lines)	12	10	80	75	2	8	7	0	--
S2/Early 6	97 (136 of 140 grid lines)	11	9	125	89	1	3	2	1	8
S2/Middle 4	94 (110 of 117 grid lines)	10	7	92	79	2	13	11	1	5
S2/Late 5	95 (123 of 130 grid lines)	12	8	106	82	2	11	8	2	6
S3/Early 11	89 (185 of 207 grid lines)	33	18	74	36	11	87	42	7	24
S3/Middle 8	96 (93 of 97 grid lines)	11	5	70	72	4	15	15	2	8
S3/Late 7	92 (116 of 126 grid lines)	19	15	105	83	1	2	2	3	9
S4/Early --	64 (74 of 115 grid lines)	16	14	69	60	2	5	4	0	--
S4/Middle 4	75 (74 of 99 grid lines)	12	6	45	46	5	24	24	1	4
S4/Late 2	84 (79 of 94 grid lines)	14	13	77	82	0	--	--	1	2

Table 4

Cued Strategies

Cued Strategy	Teacher						Number of Teachers Cuing	Number of Lessons Where Cued
	R1	R2	S1	S2	S3	S4		
Ask for clarification	ML	---	E	EML	M	---	4	7
Visualize/picture	EL	EML	---	---	E	M	4	7
Access background knowledge	EL	---	---	---	E	EML	3	6
Be organized when class begins	E	---	EML	M	L	---	4	6
Survey	E	EML	E	---	E	---	4	6
Ask yourself questions	---	EML	---	E	---	---	2	4
Predict mased on survey	E	EL	---	---	---	M	3	4
Use bold print to identify important ideas	---	---	EML	---	E	---	2	4
Do easy ready or background information	---	---	---	---	EM	E	2	3
Think about story elements	---	EML	---	---	---	---	1	3
Decide if fiction or nonfiction	---	EM	---	---	---	---	1	2
Listen for objective and homework	---	---	M	M	---	---	2	2
Read to understand, monitor understanding	E	---	---	E	---	---	2	2
Summarize to monitor understanding	E	---	L	---	---	---	2	2
Use fix-up strategy: Look back, look ahead	E	---	---	---	---	E	2	2
Add to notes during class	---	---	---	L	---	---	1	1
Analyze the author's craft	M	---	---	---	---	---	1	1
Anticipate the teacher's style	---	---	L	---	---	---	1	1
Compare or contrast to old	---	---	---	E	---	---	1	1
Differentiate important ideas	---	---	L	---	---	---	1	1
Look at homework comment	---	---	---	M	---	---	1	1
Use context or contrast/compare	---	E	---	---	---	---	1	1
Use highlighted key words	---	---	---	M	---	---	1	1
Use questions in book to identify important ideas	---	---	---	M	---	---	1	1
Write names/concepts to organize	M	---	---	---	---	---	1	1
Totals	11	7	8	10	7	5		

Note Letters indicate cuing of strategies in particular lessons. "E" indicates early lesson, "M" middle lesson, and "L" late lesson. Dashes indicate that the particular strategy was not cued in any of the three lessons

Figure Captions

Figure 1. Sample Grid Used for Coding the Transcript of a Reading or Social Studies Lesson.

Figure 2. Conceptual Overview of Teacher/Student Interaction.
[a]Responsive process moves were coded in the Teacher Tells/Asks section of the grid.

Figure 3. Form Used to Summarize Instructional Moves.

Teacher Jane Doe Date 11-30-89 Lesson To learn how geography affects culture/note taking

	TEACHER'S ASSIS											STUDENT RESPONSIBLE				TEACHER IS RESPONSIVE				
	Process Moves in the Benchmark Model								Non-Process Moves											
	objective	why	when	what/how	model	per exp	guided pra	cue	content	procedure	behavior	stud expr	stud proceed	stud proc	stud content	tchr ac/rej	tchr use	tchr tell	tchr guide	tchr expl
1											T									
2										T										
3									?						T	R				
4									?						T	R				
5									?						T	A				
6									?						T	A				
7									?						T	A				
8	?													T						
9				?										T			T			
10														T			T/?			
11														T					T/?	
12														T		A				
13		?												T			?			
14														T					T/?	
15														T						
16					T		?								T					
17															T					
18															T	A	T			
19															T					
20															T					

Figure 1

BEST COPY AVAILABLE

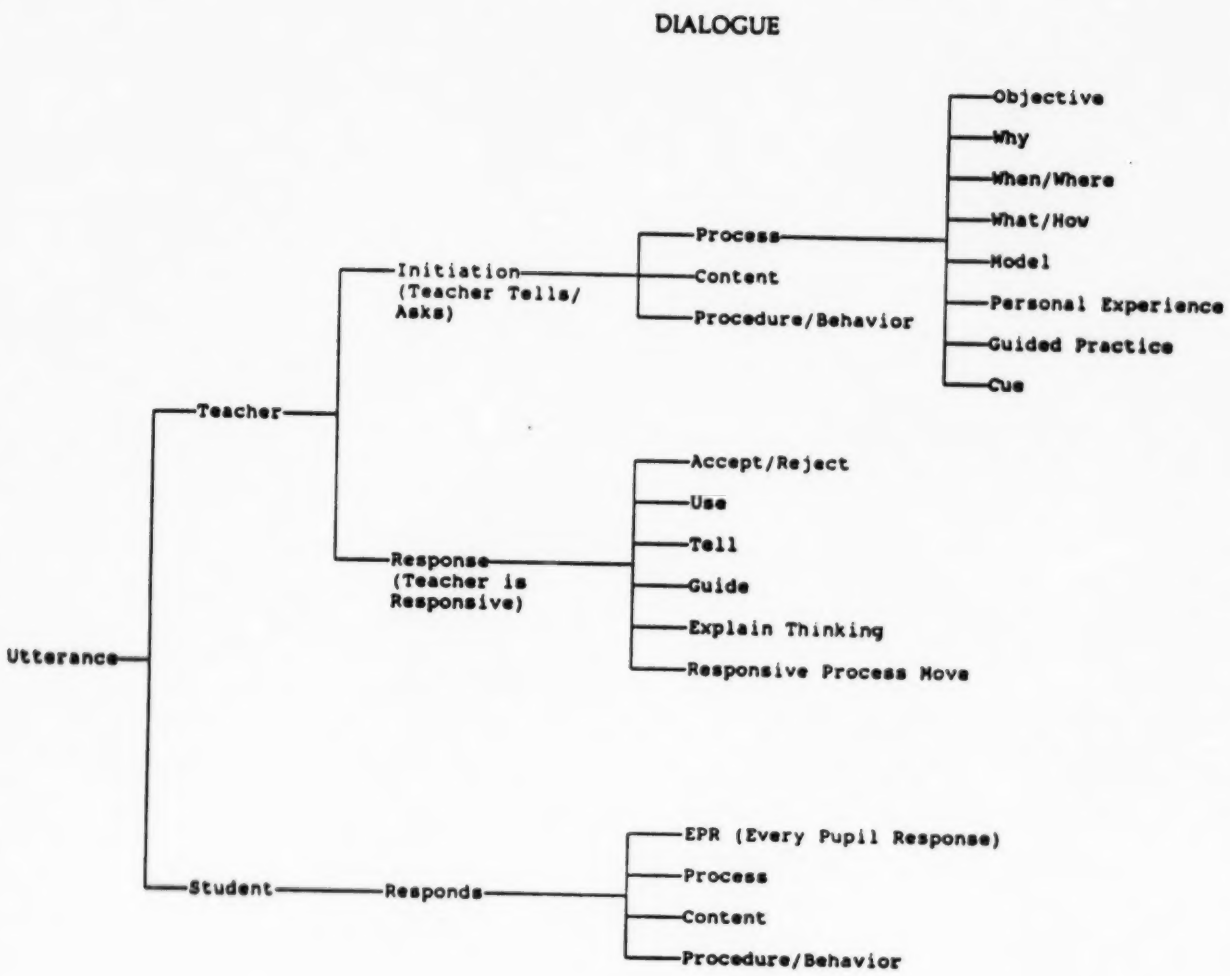
DIALOGUE
Utterance
Teacher
Initiation (Teacher Tells/ Asks)
Process
Content
Procedure/Behavior
Objective
Why
When/Where
What/How
Model
Personal Experience
Guided Practice
Cue
Response (Teacher is Responsive)
Accept/Reject
Use
Tell
Guide
Explain Thinking
Responsive Process Move
Student
Responds
EPR (Every Pupil Response)
Process
Content
Procedure/Behavior

Figure 2

Summary of Transcript (Used to Summarize Instructional Moves)

Teacher Code _____ Date of Lesson _____ Transcript No. _____

Objective _____ Why _____ When _____ What/How _____ Model _____

Personal Experience _____ Cue _____ Grid Lines _____

Objective/strategy taught or emphasized: _____

Structure of the lesson

Were students told the objective or strategy of the lesson? _____

Give examples of these elements of the lesson, if present:

Why

When/where

Mental modeling

Personal experience

Describe the explanation of how to do the strategy.

Describe the guided practice, including examples of the teacher guiding the students' thinking or explaining his/her thinking.

What other strategies were cued or used? Give examples of how students were guided to implement them.

Describe visuals or use of chalkboard.

Describe every-pupil response, if present.

Figure 3